

similar to those which fell at Fort de France and François on May 8 and 20. On July 9 the character of the ejectamenta became more pumiceous. Bombs 1·3m. in diameter were projected 800 metres. There does not appear to have been any change in the depth of the ocean near to St. Pierre.

On May 8 at the time of the eruption the sea at Fort de France receded 1m., and there were five or six undulations at intervals of about five minutes. Similar movements were also observed on May 20 and 26, June 6 and July 9. From May 7 to May 10 an unusually strong current was observed on the west coast. Each eruption was accompanied by a barometric oscillation from 1 to 3mm. in amount.

In *McClure's Magazine* for August, and in the *Fortnightly Review* for September, Prof. Angelo Heilprin contributes an article on "Mont Pelée in its Might."

For the first time we are told that for three months before the fatal explosion of May 8 Pelée had been rumbling, and that there had been occasional emissions of steam. The hour at which this explosion took place is fixed by the s.s. *Pouyer Quartier* and by the cable office at Fort de France at 8h. 2m. a.m., but according to the dial of the Hôpital Militaire of St. Pierre the time was 7h. 52m. a.m.

The first explosion would therefore appear to have resulted in ruin the distribution of which was quaquaversal. It might, for instance, have been produced by the explosion of a gas cloud. The latter, which left ruins with a definite orientation, may have had the character of a blast propagated in one direction.

No doubt, Prof. Heilprin concludes, there were numerous electric explosions, unmistakable evidence of which is found in perforated pottery and metal wares.

In the *Popular Science Monthly* for August, Dr. Thomas A. Jaggar gives an account of his visit to Martinique and St. Vincent. His first landing at St. Pierre was on May 21, the day after the second great eruption of Mont Pelée. Masonry had been completely destroyed, there was an absence of large volcanic fragments, and "everything was coated with a green-grey powder or sand." No sign of molten rock was found either here or in St. Vincent. At the latter island La Soufrière was ascended twice, after which Dr. Jaggar proceeded to Barbados to learn something of the dust showers which had covered that island.

At Walliabout and Richmond the same fiery blast swept down from La Soufrière as that which swept down on St. Pierre, and just as St. Pierre is buried so is Richmond buried, the ashes at the northern end of the town being 45 feet in thickness and three feet at the southern end. The masonry in the village was swept over, and 5-foot blocks of the same were blown to distances of 40 feet. On the west sea front of the Soufrière there are now vertical walls of earth in certain places 50 feet in height where before there was a village.

M. M. Ballou, in his "Equatorial Africa," writing in 1892, says that "it is confidently predicted (that Mont Pelée) will one day deluge St. Pierre with ashes and lava, repeating the story of Pompeii," a prediction, Dr. Jaggar remarks, based on "well-authenticated data."

Before this last eruption, so far back as January, the lake in the crater at Pelée was warm and the odour of sulphuretted hydrogen was perceived. In April, steam was emitted and rumblings were heard. From April 24 there were actual eruptions.

In St. Vincent, local earthquakes had been on the increase for a year, and so far back as May, 1901, people were frightened away from the north-west slope of the Soufrière by rumblings and quakings. The lake bubbled and sulphurous coatings were found on the rocks. In short, the signals were so pronounced that the leeward slopes of the Soufrière were abandoned, and hence the small loss of life. Had the Governments of both islands maintained vulcanological stations, the records of "tremors, sounds, sights, smells and temperatures" would no doubt have formed an increasing series of warnings.

In the Blue-book (Cd. 1201) we find 144 official communications relating to the volcanic eruptions in St. Vincent and Martinique in May, 1902. These, as may be expected, are varied in their character. Some refer to earthquakes, others to eruptions. Many are requests for assistance, whilst others are expressions of sympathy. In communication No. 129, Mr. Secretary Chamberlain calls the attention of the Board of Trade to the bravery of Captain Freeman and suggests that it should not be allowed to pass without recognition. The reply

to this states that the Board has decided to award Captain Freeman a piece of plate in recognition of his gallantry. Other communications deal with the mineralogical character of the ejectamenta, personal experiences within the devastated zone, pecuniary losses and other matters. Although many of the notes in this volume have but a small scientific value, there yet remains much not to be overlooked by those who compile the history of these terrible disasters.

Dates of Volcanic Eruptions in Central America and the West Indies (Rockstroh-Fuchs).

1552	...	1699	...	1785—	...	1852—
1526—	...	1705—	...	1797×—	...	1853—
1541	...	1706	...	1798—	...	1854—
1565—	...	1707	...	1799—	...	1855—
1581	...	1709—	...	1802×—	...	1855—
1582—	...	1710	...	1803—	...	1856—
1585-6—	...	1717—	...	1809—	...	1857—
1614	...	1718×—	...	1812×—	...	1858—
1623	...	1723	...	1821—	...	1860
1643	...	1726	...	1828	...	1865
1651—	...	1732—	...	1829—	...	1867—
1664	...	1737—	...	1833	...	1868
1668—	...	1764	...	1835—	...	1869—
1670	...	1766×—	...	1836×—	...	1870
1671	...	1770	...	1844—	...	1873
1677—	...	1772	...	1847—	...	1880—
1686	...	1775	...	1850	...	1883
1692×—	...	1775	...	1851×—	...	1902×—

West Indian eruptions are marked ×.

Unusual seismic disturbances are marked —.

From the above, which is chiefly compiled from the writings of Rockstroh and Fuchs, it will be noticed that *all* the West Indian eruptions have been accompanied by unusual seismic disturbances either in the West Indies themselves or in neighbouring rock folds.

J. MILNE.

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—In consequence of the large number of students in the department of anatomy, it is proposed to appoint two additional demonstrators, to be paid from the fees received for instruction.

The State Medicine Syndicate report that ninety candidates have been examined by them in the present year; of these, fifty-two were successful in obtaining the University diploma in public health. The Syndicate propose that a second grant of 1000*l.* be made from the funds in their hands toward the new Medical School buildings, in which provision will be made for teaching and examinations in sanitary science.

The Sedgwick Memorial Museum of Geology is nearly ready for occupation; the building syndicate estimate the cost for structure and fittings at more than 45,000*l.* Of this, some 27,000*l.* comes from the accumulated subscriptions to the memorial fund, 3000*l.* will be obtained from the University Press profits, and the balance probably from the benefaction fund.

THE Right Hon. Sir William Hart Dyke, Bart., M.P., will distribute the prizes at the Merchant Venturers' Technical College, Bristol, on Friday, December 12.

THE *Athenaeum* announces that Sir William Muir has resigned the post of principal of the University of Edinburgh, which he has held since 1885.

In his inaugural address at the opening of the session of the Royal College of Science, Prof. Perry expressed his anxiety for the creation of a fund to provide bursaries to assist the national scholars and other Government students. We are glad to hear that this fund has been started with a gift of 100*l.* from the Drapers' Company, to be divided equally among ten of the scholars. The Company do not pledge themselves to continue this help.

LOCAL museums and local natural history societies can be of much assistance to nature-study in schools by directing attention to observations of natural objects. We are, therefore, glad to see that there will be a conference on nature-study at the Stepney Borough Museum on December 3, at 5.30 p.m.,

when Mr. A. D. Hall, director of the Rothamsted Agricultural Experiment Station, will give an address. The chief object of the conference is the development of the work of the museum with the schools.

ABOUT six hundred teachers and school managers from all parts of the East Riding met at Beverley on Saturday last, at a conference on nature-study. Lord Herries, chairman of the Technical Education Committee of the East Riding County Council, presided, and an address was given by Prof. Miall, who advised his hearers not to use stuffed animals and dried plants in the class-room, but wherever possible to study living animals and plants. A representative committee was elected to promote nature-study in the East Riding and Hull.

WE learn from the *British Medical Journal* that the Board of Trustees of the Johns Hopkins University, Baltimore, has accepted an offer made by Dr. and Mrs. Christian Herter, of New York, to give 5000*l.* to found a memorial lectureship in the medical department of the University, "designed to promote a more intimate knowledge of the researches of foreign investigators in the realm of medical science." This end is to be secured by inviting each year some eminent worker in physiology or pathology to deliver one or more lectures at the Johns Hopkins University upon a subject with which his name is associated. The lecturer will receive as an honorarium the annual income of the endowment. The selection of the lecturer will be made by a committee consisting of Dr. Welch, Dr. Osler and Dr. Abel.

THE Gordon Memorial College at Khartoum, which Lord Kitchener opened recently, is now ready for the chemical and bacteriological research laboratories presented by Mr. Henry S. Wellcome during his recent visit to the Soudan. The fixtures and appliances, made in England, have already been shipped. The equipment for scientific work is most complete in every detail, and will be equal to that in any similar laboratories in Europe. The Sirdar has appointed as director of these research laboratories Dr. Andrew Balfour, of Edinburgh, who has done good work in bacteriology. The Soudan presents exceptional opportunities for the study of tropical diseases, especially malaria, typhoid and dysentery, and it is anticipated that the results of the investigations of Dr. Balfour and his staff will be of the greatest importance. Apart from the original researches and general sanitary work, Dr. Balfour and his staff will devote their attention to the study of the cereals, textile fibres and various matters affecting the development of the agricultural and mineral resources of the country. Dr. Balfour leaves England on December 11, and will be entertained at dinner at the Princes' Restaurant, Piccadilly, on December 8.

A POST-GRADUATE course for the training of teachers in secondary schools will be commenced in January at the London Day Training College, Clare Market, W.C. Candidates for the one year's course of professional training must be graduates, or must have undergone a course of university study and passed an examination equivalent to that for a university degree in arts or in science. All students will receive instruction in the theory, history and art of education, so as to prepare them for the examination for the teacher's diploma of the University of London, and will also go through a course of practical work in approved secondary schools. All the principles studied in the lecture room will be exemplified in the schools, and visits of observation will be made to schools of marked excellence or of special educational interest. Candidates should make application for admission to the course for graduates not later than December 8. Applications should be addressed to the Secretary of the Technical Education Board of the London County Council, 116 St. Martin's Lane, W.C.

THE report of the Indian Universities Commission, to which attention was directed in these columns on September 4, has given rise to many expressions of dissatisfaction in the native Press of India. A resolution explaining the attitude of the Governor-General in Council towards the report was recently circulated among local governments and administrations with a view to evoke full discussion, so that, before coming to a final conclusion, the Government of India may know exactly what is thought by all persons concerned in Indian education. The resolution makes it quite clear that neither the Government nor the Commission desires to initiate a policy tending to make education the monopoly of the rich. At the same time, it is pointed out that a certain minimum standard of efficiency is necessary, and

this is only possible if the expenditure reaches a certain amount which entails fees that some would-be students may find it difficult to pay. The Government, however, contemplates the provision of scholarships for the more able boys and an endowment to cheapen education for poor students. The *Pioneer Mail* is of opinion that the resolution may indefinitely postpone the thorough reform of Indian university education.

ON Monday afternoon, Lord Dudley, in laying the foundation-stone of a new technical institute at Belfast, remarked that if we are to hold our own in the great war of the world, we must see that the soldiers of industry are equipped with the best training that can possibly be given. Replying to the toast of his health at a dinner on Monday evening, Lord Dudley is reported by the *Times* correspondent to have said that the scheme of technical instruction in Belfast was, he understood, incomplete in respect to the fact that it did not include opportunities of learning all that modern science had to tell about the different subjects included in its course. How this defect could be remedied was a subject for careful consideration on their part. The most obvious course would be to make their scheme culminate in the Queen's College and to link that college to their institute. The great obstacle was one of expense; but he could promise them, if they put forward a scheme of that nature, and it was sufficiently supported by local efforts, that the Irish Government would consider it carefully on its merits and bring before the Treasury its claims for assistance from the public funds.

#### SCIENTIFIC SERIALS.

*Journal of Botany*, November.—The article by Mr. H. N. Dixon on new varieties of British mosses will interest bryologists. In addition, Mr. E. S. Salmon contributes some bryological notes. The monotypic genus *Osculatia* instituted by De Notaris is referred to *Bryum*, and three species of *Schwetschkea*, C. Müller, are confirmed, while a fourth is assigned to *Leskea*.—Mr. Spencer Moore describes South African plants, collected mostly by Mr. T. Ommamney and Capt. Barrett-Hamilton, of which several species are new.—The catalogue of British Algae compiled by Mr. A. E. Batters continues the *Rhodophyceae* which began in the last number. —There is presented a brief sketch and portrait of Mr. T. Comber, who made a special study of the *Diatomaceae*.

*American Journal of Science*, November.—Observations on the eruptions of 1902 of La Soufrière, St. Vincent, and Mont Pelée, Martinique, by E. T. Hovey. The first ascent of La Soufrière after the eruption was made on May 7, when the crater was found to be practically unchanged in diameter. The "new" crater of 1812 appears to have taken no part in the eruptions, and although there are many ancient lava beds in the island, no stream of melted lava has issued from the Soufrière during the present eruption. The paper is accompanied by two maps, showing the devastated areas on the two islands, and sixteen photographs.—On the reflection of electric waves at the free end of a parallel wire system, by H. A. Bumstead.—The Upper Permian in Western Texas, by G. H. Girty.—The reduction of vanadic acid by the action of hydrochloric acid, by F. A. Gooch and L. B. Stookey. The reduction of vanadium pentoxide to the trioxide by the action of hot concentrated hydrochloric acid has been suggested as the basis of a quantitative method for the estimation of vanadic acid, but the results of previous work have been contradictory. It is shown by the author that, by the adoption of suitable precautions, the reaction can be made nearly complete, but the method is not a suitable one for the determination of vanadic acid, except when this substance is present in very small amount.

#### SOCIETIES AND ACADEMIES.

##### LONDON.

**Physical Society**, November 14.—Prof. S. P. Thompson, president, in the chair.—A paper on the theory of the aluminium anode, by W. W. Taylor and J. K. H. Inglis, was read by Mr. Inglis. Aluminium is very slowly acted upon by dilute sulphuric acid even at moderately high temperatures. With dilute hydrochloric acid, the action is violent, and it is found that a little hydrochloric acid or soluble chloride be added to dilute sulphuric acid, the action is as violent as with hydrochloric acid